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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. – Information Science and Engineering

Semester End Examination; Dec. - 2014

File Structures

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part.*

PART - A

1. a. Explain the basic file processing operations. 10

   b. What are file structures? Mention the goals of file structure design. 4

   c. Differentiate between

      i) Disk and Tape 6

      ii) CLV and CAV

2 a. Explain the strength and weakness of CD-ROM. 5

   b. Explain the different Record structure used in the organization of the file. 10

   c. Explain the UNIX tools for sequential processing. 5

3. a. Explain the limitations of binary searching and internal sorting. 10

   b. What is Data compression? Explain irreversible Data Compression techniques. 4

   c. Explain how secondary index structure can be improved using inverted light. 6

4 a. Explain the following:

      i) A selection tree for merging large number of lights 10

      ii) Heap tree properties with example.

   b. With example & algorithm explain Replacement selection algorithm. 10

PART - B

5 a. Write the formal definition of B-Tree? Show the B tree creation of order 4 for the following set of keys C S D T A M P I B W N G U R. 10

   b. With example explain the rules for deleting a key from B-tree. 8

   c. What is an AVL tree? 2

6 a. With diagram explain the internal structure of index set block. 10

   b. Discuss the common characteristics and difference between B tree, Simple Prefix B+ tree, B+ tree. 10

7 a. What is Hashing? Explain the simple hashing algorithm. 10

Contd…2

b. Suppose that 1000 addresses are allocated to hold 500 records in a random by hashed file and each address can hold one record. Compute the following values.

i) The packing density for the file

ii) The expected number of address with no records assigned to them

iii) The expected number of address with exactly one record assigned. 6

iv) The expected number of addresses with one record plus one or synonymy.

v) The expected number of overflow records assuming that only one record can be assigned to each home address

vi) Percentage of overflows records.

c. Discuss how tombstones are used for handling deletion in hashing. 4

8 a. Write a note on:

i) Dynamic hashing 10

ii) Linear hashing

b. Explain about extendible hashing performance. 10

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